

## Two new species of *Cosmopsaltria* Stål from New Guinea (Homoptera, Cicadidae)

by

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As a preliminary result of the study of the Cicadidae collected by the Third Archbold Expedition in the central part of New Guinea, I have added (DUFFELS, 1965) two species to the genus *Cosmopsaltria* Stål, 1866. These species, *C. meeki* (Distant, 1906) and *C. bloetei* Duffels, 1965, constitute a group, easily distinguishable from the species more closely related to the type of the genus, *C. doryca* (Boisduval, 1835), by the triangular shape of the male operculum and the rather small size of the body. The examination of new material enables me to add two new representatives to this group of small *Cosmopsaltria* species. Moreover I can give a more extensive description of *meeki*, some complementary figures of *meeki* and *bloetei*, and additional distributional data of these species.

This paper was based on material belonging to the institutions mentioned below and to the private collection of my friend Mr. W. H. GRAVESTEIN; the names of the institutions are preceded by the abbreviations used in this paper.

BM	British Museum (Natural History), London
Bishop	Bernice P. Bishop Museum, Honolulu
RML	Rijksmuseum van Natuurlijke Historie, Leiden
ZMA	Zoölogisch Museum, Amsterdam

For the loan of material and valuable help I am indebted to the authorities of these museums and to Miss S. NAKATA (Honolulu), Mrs. C. HIGA (Honolulu), Dr. P. H. VAN DOESBURG Jr. (Leiden), Mr. W. H. GRAVESTEIN (Amsterdam), Dr. J. L. GRESSITT (Honolulu), Dr. W. J. KNIGHT (London) and Dr. M. A. LIEFTINCK (Leiden). A grant from the Netherlands Organisation for the Advancement of Pure Research, Z. W. O. (nr. R 954-58) enabled me to study the material in the collection of the British Museum (Natural History), London.

The following extensive description of *C. meeki* is necessary since this species cannot be separated from one of the species, described as new in this paper, on account of the characters mentioned in DISTANT's original description. Moreover a description of the hitherto unknown female of *meeki* can be added.

The measurements given in the descriptions are based upon all available specimens and rounded off to the nearest 0.5 mm.

The distribution of the four species treated in this paper has been illustrated in fig. 11. In the figs. 5, 7 & 9 the pygofer has been drawn in an unnatural position as it had to be pulled out of the abdomen for the examination of the male genitalia.



Figs. 1—4. Head and thorax in dorsal view. 1, *Cosmopsaltria meeki* (Distant), male from Wau, 10-19.V.1962; 2, *Cosmopsaltria satyrus* n. sp., male holotype; 3, *Cosmopsaltria bloetei* Duffels, male holotype; 4, *Cosmopsaltria emarginata* n. sp., male holotype. Del. B. Weijde.

*Cosmopsaltria meeki* (Distant, 1906)

figs. 1, 5, 6 & 11

*Haphsa meeki* Distant, 1906: 149; DISTANT, 1912: 47, pl. 7 figs. 40, 40 a-c.

*Cosmopsaltria meeki*; DUFFELS, 1965: 375, fig. 3.

Material examined. — Holotype of *Haphsa meeki*, Br[itish] N[ew]

Guinea, Ougarra, 1905 (A. S. MEEK) ♂, BM (1906-92). SE New Guinea (Papua): Mondo, 5000 ft, II.1934 (L. E. CHEESMAN) 2 ♂, BM (1934, 321). NE New Guinea: Wau, Morobe Distr., 1200 m, 1-20.XI.1961 (J. SEDLACEK) 1 ♂, Bishop, same data but 5-6.XII.1961, 1 ♂, 25-30.IV.1962, 2 ♂, 10-19.V.1962, 1 ♂, 15.V.1962, 3 ♂, 18-21.I.1963, 1 ♂, 1-5.IV.1963, 2 ♂, 28-29.VII.1963, 1 ♂, 14-24.III.1964, 2 ♂, 5-13.III.1964, 1 ♂, 3-7.IV.1964, 4 ♂, 15.IV-15.V.1964 (M. SEDLACEK) 1 ♂, 15-22.V.1964 (M. SEDLACEK) 1 ♂, 25-30.IX.1964 (J. & M. SEDLACEK) 1 ♂; Wau, IX.1965 (J. & M. SEDLACEK) 1 ♂, Bishop; Wau, 1000—1200 m, 3.III.1964 (J. SEDLACEK) 1 ♂, Bishop; Wau, 1250 m, 3.I.1963 (J. SEDLACEK) 1 ♂, Bishop, same data but 9.I.1963, 1 ♂, 11.I.1963, 1 ♂; 7° 15' S 146° 48' E, Mt. Missim, 1600 m, 12.V.1966 (J. L. GRESSITT) 1 ♂, 1 ♀, Bishop; Mt. Missim, 880—1050 m, 8-9.II.1963 (J. SEDLACEK) 2 ♂, Bishop; Without locality, 5 ♂, Bishop.

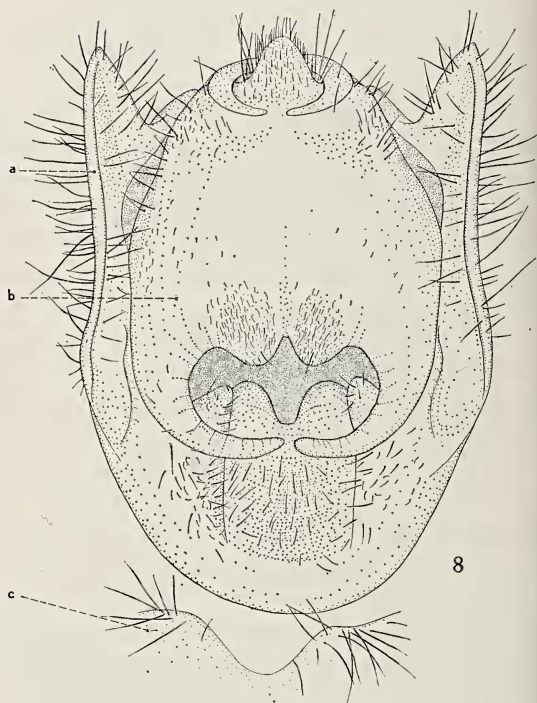
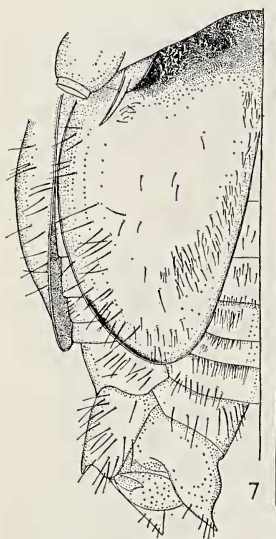
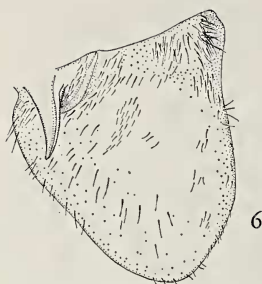
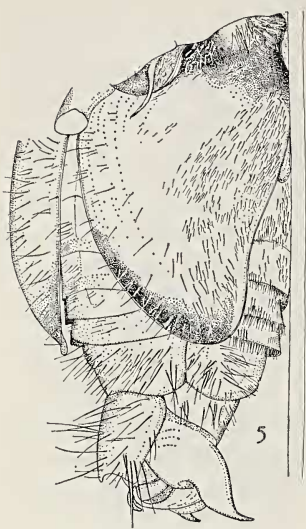
The female specimen from Mt. Missim was almost certainly captured in copula with a male of *meekei*, provided with the same labels as the female, since the uncus of the male is turned backwards and the genital segments of the female are protruding more than at rest.

#### DESCRIPTION

**Head.** — Rather hairy. Postclypeus light ochraceous with a pattern of black fasciae, rather variable in width in the specimens examined. The rather large black spot at the base of the postclypeus narrows anteriorly to a median black fascia, which bifurcates halfway up the postclypeus. The branches extend laterally to the anterior angles of the vertex lobes and also embrace a round spot of the ground-colour situated in the middle of the front margin of the postclypeus; this spot is sometimes hardly separated from a faint spot near the frons. Anteclypeus ochraceous, in most specimens with a brownish black, oblong spot on each side. Rostrum extending beyond the posterior coxae; apex of rostrum black. Vertex brownish ochraceous with an irregular black spot round the ocelli. In the unique female of *meekei* the head is somewhat paler than in the males.

**Thorax.** — Pronotum and mesonotum rather hairy, lateral sides with appressed silvery hairs. Pronotum of the male brownish ochraceous with a light ochraceous pronotum collar. The median, light ochraceous fascia is bordered on each side by percurrent, black, paramedian fasciae, widened anteriorly and passing posteriorly into the usually broadly black fissure along the anterior margin of the pronotum collar. The paramedian fasciae of the female are very narrow and reach from front margin to halfway the length of the pronotum. Other fissures of the pronotum narrowly black. The pronotum disk is provided with some small black spots. Underside of the thorax hairy and ochraceous coloured.

Mesonotum with a greenish ochraceous to brownish ground-colour and five longitudinal black fasciae, viz. a single median, a pair of paramedian and a pair of lateral fasciae. The narrow median fascia widens somewhat towards its end on two thirds of the mesonotum length. The rather broad paramedian fasciae are usually percurrent from front margin of the mesonotum to the cruciform



Figs. 5—6. *Cosmopsaltria meeki*, 5, male from Wau, 10-19.V.1962, abdomen with opercula in ventro-lateral view; 6, female from Mt. Missim, operculum in ventro-lateral view.

Figs. 7—8. *Cosmopsaltria satyrus* n. sp., 7, male holotype, abdomen with opercula in ventro-lateral view; 8, male holotype, genitalia. a, pygofer; b, uncus; c, sternite VIII.

elevation, but in some males and in the female these fasciae are interrupted at two thirds of their length. In most specimens the end of the median fascia is transversely connected with the paramedian fasciae, so that a black M-shaped figure is formed on the posterior part of the mesonotum. The rather broad lateral fasciae are percurrent, in some specimens somewhat faintly coloured anteriorly. Anterior half of the mesonotum with a dark castaneous obconical spot between median and paramedian fasciae. Moreover the lateral fasciae are broadly margined with dark castaneous on both sides.

**Legs.** — Fore femora ochraceous with black brown lines; femora of middle and hind legs brownish ochraceous, apices more brownish black coloured. Tibiae of fore legs brownish, of middle and hind legs ochraceous, bases and apices brownish to black. Tarsi of fore and middle legs black, tarsi of hind legs ochraceous.

**Opercula.** — Operculum of the male (fig. 5) rather convex, widest at its base, tapering towards the rounded apex, and reaching the seventh abdominal segment. In a ventro-lateral view the lateral side of the operculum is concavely curved halfway down the operculum, so that the apex is directed somewhat laterad. Main part of the operculum reddish brown or castaneous, latero-basal angle and the apical part more or less black, the black colouring of the apex extending along the medial margin. Especially the lateral side of the operculum silvery pilose. Operculum of the female (fig. 6) greenish ochraceous, triangular with a rounded apex. Sparsely covered with minute silvery hairs.

**Tegmina and wings.** — Hyaline. Basal third of the venation of the tegmina black variegated with ochraceous, remaining venation black. Anterior veins of the wings black, posterior veins ochraceous. Transverse veins at the base of the second, third, fifth and seventh apical areas of the tegmina infuscated; smaller fuscous spots at the apices of the longitudinal veins of the apical areas.

**Abdomen.** — Upperside and underside of the male abdomen dark castaneous to black, third to fifth abdominal ventrite mainly ochraceous, with the exception of the castaneous posterior margins. Abdomen of the female castaneous above, underside ochraceous. Abdomen of both sexes rather hairy on both sides and the upperside of the abdomen long silvery pilose along the lateral sides and the posterior margins of the segments.

**Male genitalia** (figured in DUFFELS, 1965 : fig. 3). — Apices of the spine-like projections on both sides of the pygofer curved somewhat laterad. Uncus with two slender, strongly curved lobes.

**Measurements.** — Length of the body ♂ : 26—29 mm, ♀ : 29 mm; length of head from apex of postclypeus to pronotum ♂ : 3.5—4 mm, ♀ : 4 mm; length of pronotum ♂ & ♀ : 4.5 mm; length of mesonotum including cruciform elevation ♂ : 7.5—8 mm, ♀ : 8.5; width of head including eyes ♂ : 9—9.5 mm, ♀ : 9.5 mm; width of pronotum ♂ : 11—12 mm, ♀ : 12 mm; width of mesonotum ♂ : 10—10.5 mm, ♀ : 10.5 mm; length of tegminum ♂ : 43—46 mm, ♀ : 50 mm.

**Cosmopsaltria satyrus** n. sp.

figs. 2, 7, 8 &amp; 11

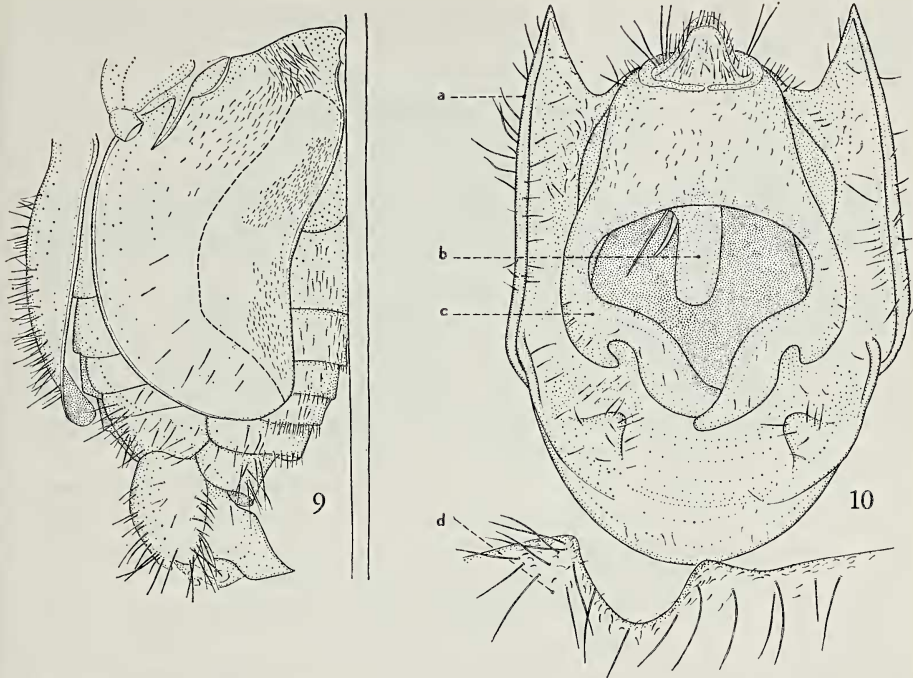
**Material examined.** — Holotype: Central New Guinea, Mist Camp, 1800 m, 11.I.1939 (L. J. TOXOPEUS, Neth. Ind. American New Guinea Exp.) ♂, RML; Paratypes: West New Guinea: Star Range, bivak 39, 1500 m, 30.VI.1959 (Neth. New Guinea Exp.) 1 ♂, RML; Star Range, Sibil, 1260 m, 8.IV.1959 (Neth. New Guinea Exp.) 1 ♂, RML, same data but 2.V.1959, 1 ♂, 7.V.1959, 1 ♂, 30.V.1959, 1 ♂, 9.VI.1959, 1 ♂, 9.VIII.1959, 1 ♂ Star Mts., Sibil Val., 1245 m, 18.X—8.XI.1961 (S. & L. QUATE) 1 ♂, Bishop; Sterrengebergte, Sibil, 1250 m, 5.VI.1958 (R. T. SIMON THOMAS) 1 ♂, coll. W. H. GRAVESTEIN; Central New Guinea, Araucaria Camp, 800 m, 10.III.1939 (L. J. TOXOPEUS, Neth. Ind. American New Guinea Exp.) 1 ♂, RML, same data but 16.III.1939, 2 ♂, 19.III.1939, 1 ♂, 21.III.1939, 1 ♂; Central New Guinea, Bernhard Camp, 50 m, 13.III.1939 (L. J. TOXOPEUS, Neth. Ind. American New Guinea Exp.) 1 ♂, RML; Central New Guinea, Mist Camp, 1800 m, 10.I.1939 (L. J. TOXOPEUS, Neth. Ind. American New Guinea Exp.) 2 ♂, RML, same data but 11.I.1939, 1 ♂, 15.I.1939, 2 ♂, 16.I.1939, 1 ♂, 17.I.1939, 1 ♂, 19.I.1939, 1 ♂, 24.I.1939, 1 ♂; Central New Guinea, Rattan Camp, 1200 m, II.1939 (L. J. TOXOPEUS, Neth. Ind. American New Guinea Exp.) 7 ♂, RML, same data but 22.II.1939, 1 ♂; Central New Guinea, Top Camp, 2100 m, 9.II.1939 (L. J. TOXOPEUS, Neth. Ind. American New Guinea Exp.) 1 ♂, RML. NE New Guinea: Eliptamin Valley, 1200—1350 m, 16—31.VII.1959 (W. W. BRANDT) 1 ♂, Bishop, same data but 19—30.VI.1959, 1 ♂.

*C. satyrus* is very closely allied to the preceding species; as the female of *satyrus* is unknown, the distinction of *meeki* and *satyrus* can only be discussed on account of the characters of the male. The present species differs from *meeki* in the following characters.

**Thorax.** — The paramedian fasciae of the mesonotum are mostly not percurrent but broken up in a fascia reaching from the front margin of the mesonotum to two thirds of the mesonotum length and a black spot in front of the cruciform elevation. Only three specimens from Sibil have percurrent paramedian fasciae.

**Operculum** (fig. 7). — Less convex than in *meeki*; the apex reaches the sixth or the seventh abdominal segment. In ventro-lateral view the lateral margin of the operculum is straight or very slightly curved, so that the apex is not directed laterad as in *meeki*. Colour of the operculum light ochraceous to brownish with the latero-basal angle black. In most specimens the apical part of the operculum is not black margined at all, only in a few specimens the medial margin of the apical part is very narrowly black.

**Male genitalia** (fig. 8). — This species differs conspicuously from *meeki* in the structure of the male genitalia. Apices of the spine-like projections of the pygofer straight or very slightly curved laterad. The very large basal part of the uncus bears two short, rather slender lobes curved medially; margin of the uncus between the lobes weakly bilobate.



Figs. 9—10. *Cosmopsaltria emarginata* n. sp., male holotype 9, abdomen with opercula in ventro-lateral view (the broken line on the operculum marks the boundary between the left black and the right ochraceous part); 10, genitalia. a, pygofer; b, aedeagus; c, uncus; d, sternite VIII.

**Measurements.** — Length of the body: 25—31 mm; length of head from apex of postclypeus to pronotum: 3.5—4 mm; length of pronotum: 4.5—5 mm; length of mesonotum including cruciform elevation: 6.5—9 mm; width of head including eyes: 8—10 mm; width of pronotum: 10—12.5 mm; width of mesonotum: 8.5—11 mm; length of tegminum: 41—49 mm.

### *Cosmopsaltria bloetei* Duffels, 1965

figs. 3 & 11

*Cosmopsaltria bloetei* Duffels, 1965: 372, figs. 1—2.

The description of this species was based on five male specimens from Central New Guinea: Rattan Camp, Araucaria Camp and Mist Camp. The rich collection of New Guinea Cicadidae of the Bishop Museum contains two specimens belonging to *bloetei*, one male from NE New Guinea, Eliptamin Valley, 1200—1350 m, 16—30.VIII.1959 (W. W. BRANDT) and one male from Papua, Normanby Island, Wakaiuna, Sewa Bay, 21—31.XII.1956 (W. W. BRANDT). These specimens perfectly agree with the types from Central New Guinea. The new localities show that this species is distributed possibly throughout the eastern part of New Guinea.

As an addition to the original description I have figured the head and thorax of

the holotype of *bloetei* (fig. 3), especially to facilitate the distinction from the allied *C. emarginata* n. sp.

*Cosmopsaltria emarginata* n. sp.  
figs. 4 & 9—11

**Material examined.** — Holotype: NW New Guinea, Nabire, S. Geelvink Bay, 3—9.VII.1962 (J. L. GRESSITT & J. SEDLACEK) ♂, Bishop. Paratypes: same data as holotype 6 ♂, Bishop, idem but 1—20 m, 3.VII.1962 (J. L. GRESSITT) 1 ♂, Bishop, idem 10—15 m, 1—5.IX.1962 (J. SEDLACEK) 1 ♂, Bishop; Neth. New Guinea, 1920—1922 (C. TER POORTEN) 1 ♂, ZMA.

*C. emarginata*, known only in the male sex, strongly resembles the preceding species in general appearance. More specially the medially black and laterally ochraceous coloured male operculum points to a close relationship with *bloetei*. *C. emarginata* differs from this species in the following characters:

**Thorax.** — Black fasciae of the mesonotum distinctly narrower than in *bloetei*. Lateral fasciae of the mesonotum interrupted anteriorly. The specimen from Neth. New Guinea without further locality differs from the rest of the type-series by the lighter colouring of the head and thorax.

**Operculum** (fig. 9). — Medially black and laterally ochraceous (the broken line on the operculum in fig. 9 marks the boundary between the left black and the right ochraceous part). In *emarginata* the same variability in the extension of the ochraceous and black colour of the operculum is found as in *bloetei*; in most paratypes the ochraceous colour is much more extended to the central part of the operculum than in the holotype. In comparison with *bloetei* the operculum is more elongate, whereas from a later-ventral point of view the lateral margin of the operculum is decidedly less strongly curved. The operculum reaches the seventh or the eighth abdominal segment.



Fig. 11. Distribution of *Cosmopsaltria meeki* (Distant), *C. satyrus* n. sp., *C. bloetei* Duffels and *C. emarginata* n. sp. Del. B. WEIJDE.



**Tegmina.** — Although the pattern of fuscous spots recalls *bloetei*, the infuscations at the base of the fifth and seventh apical areas are very obscure, whereas the marginal row of spots situated at the apices of the longitudinal veins of the apical areas are hardly or not recognizable.

**Male genitalia** (fig. 10). — The lateral projections on both sides of the pygofer are more acuminate than in *bloetei*. The male of *emarginata* is easily distinguished from the allied species treated in this paper by the form of the uncus lobes, of which the emargination of the outermargin is highly characteristic.

**Measurements.** — Length of the body: 27—29 mm; length of head from apex of postclypeus to pronotum: 3.5—4 mm; length of pronotum: 4.5—5 mm; length of mesonotum including cruciform elevation: 7.5—8 mm; width of head including eyes: 9.5—10 mm; width of pronotum: 11—11.5 mm; width of mesonotum: 10—10.5 mm; length of tegminum: 42—44 mm.

#### Literature

- DISTANT, W. L., 1906, Undescribed Cicadidae. *Annls Soc. ent. Belg.* 50 : 148—154.  
 ———, 1912, Homoptera, fam. Cicadidae, subfam. Cicadinae. *Genera Insectorum* 142 : 1—64, pl. I—VII.
- DUFFELS, J. P., 1965, A new species of *Cosmopsaltria* Stål, with preliminary notes on the genus (Homoptera, Cicadidae). *Nova Guinea (Zool.)* 35 : 371—376, figs. 1—5.
- TOXOPEUS, L. J., 1940, Nederlandsch-Indisch Amerikaansche Expeditie naar Nederlandsch Nieuw Guinea (3e Archbold-Expeditie naar Nieuw Guinea 1938-'39). *Treubia* 17 : 271—275, 1 map.

*Eupithecia abietaria* Goeze (Lep., Geometridae). Toevallig vond ik in *Ent. Z. Stettin* 36: 236—238 (1875) een interessante mededeling van de toen al bekende specialist K. DIETZE over het vinden van de rupsen van deze bij ons nog altijd zo schaarse spanner. Hij trof ze eind juli (in het Zwartewoud!) in de onrijpe kegels van de spar (*Pinus abies*) aan in diverse stadia van ontwikkeling, vooral in kegels waarvan de spits verdord was, of de vorm gekromd, of waaruit hars droop, of waaraan excrementen hingen. De rupsen leven in gangen, die spiraalvormig om de as van de kegel lopen en eten daarbij al het materiaal op, dat ze onderweg tegen komen, dus niet alleen de onrijpe zaden. Eén enkele rups kan daarbij voor zijn volledige ontwikkeling een hele kegel voor zijn rekening nemen. De dieren zijn bijna niet te onderscheiden van de rupsen van de Pylalide *Cateremna terebrella*, die ook in de kegels leven. Ze bewegen zich ook niet voort op de manier van een nette spanrups, maar kunnen door de stand van hun poten op hun buik snel voor- en achteruit kruipen, wat ze nog meer op een micro-rups doet lijken.

Nu is de moeilijkheid, dat oude sparren alleen kegels bovenin vormen. DIETZE zocht ze daarom in ongeveer 20-jarige bomen, waarbij de kegels nog binnen bereik kunnen hangen. Wie dus jonge sparren weet te staan, kan er allicht eens een kwartiertje aan wagen om te kijken naar aangetaste kegels, bij ons waarschijnlijk in augustus. Of de rups ook in de kegels van de nu veel aangeplante douglasspar (*Pseudotsuga douglasii*, de „kerstboom” met alleenstaande naalden) voorkomt, is niet bekend. — LPK.